

**APPARATUS AND METHOD FOR ON-CHIP CONCENTRATION USING A
MICROFLUIDIC DEVICE WITH AN INTEGRATED ULTRAFILTRATION
MEMBRANE STRUCTURE**

ABSTRACT

5 The present invention provides a microfluidic device capable of reacting an enzyme or other agent with a substantially purified polypeptide. In one embodiment of the present invention, the microfluidic device comprises a plurality of reaction channels wherein the substantially purified polypeptide is delivered to a reaction channel. Once confined within the reaction channel, the substantially purified polypeptide engages the enzyme or agent and

10 produces a reaction product. In a preferred embodiment of the present invention, the reaction product is concentrated at a charged membrane prior to being removed from the microfluidic device. Additionally, the present invention provides a method of concentrating a positive analyte at a positively charged membrane and a negative analyte at a negatively charged membrane. Once concentrated, the analytes may be removed from the microfluidic device.

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